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10/608,232	06/30/2003	Jae-Yong Park	053785-5133	1756

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EXAMINER	
RIELLEY, ELIZABETH A	

ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 08/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/608,232	PARK ET AL.	
	Examiner	Art Unit	
	Elizabeth A. Rielley	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Amendment filed 5/5/065 has been entered and considered by the Examiner. Currently, claims 1-34 are pending in the instant application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 4-10, 12, 13, 15-19, 21-28, and 30-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoneda et al (US 20010026127) in view of Eida et al (US 5909081).

In regard to claim 1, Yoneda et al ('127) teaches an organic electroluminescent display device, (figure 2) comprising: first and second substrates bonded together (2, 21; paragraphs 34, 38 and 20; the Examiner notes that the "bonded together" limitation is not in the figures, see paragraph 20), the first and second substrates having a plurality of pixel regions (abstract); a plurality of driving elements (3, 4, 5, 6, 7, 8; paragraphs 34-35) on an inner surface of the first substrate (2) within each of the plurality of pixel regions; a plurality of connection electrodes contacting the driving elements (9; paragraph 36); a black matrix (23) on an inner surface of the second substrate (21) at a boundary of each of the plurality of pixel

regions (paragraph 39); a color filter layer including red (24R), green (24G), and blue (24B) color filters on the inner surface of the second substrate (21), each of the red, green, and blue color filters corresponding to each of the plurality of pixel regions (paragraph 39); a first electrode on the black matrix and the color filter layer (17); an organic electroluminescent layer (14; paragraph 36) on the first electrode; and at least one second electrode (12) on the organic electroluminescent layer, wherein the at least one second electrode contacts the connection electrodes (9; paragraph 36). Yoneda et al ('127) are silent regarding the limitation of a planarization layer surrounding end portions of the color filter layer and the black matrix and forming the first electrode on the planarization layer. In the same field of endeavor, Eida et al ('081) teaches an organic EL device including a planarization layer (7; figure 13; column 6 lines 30-32) between a first electrode (1a; column 24 line 13) and the color filter layers (14 and beneath 3R and 3G as described in column 24 lines 15-25), the planarization layer includes a transparent insulating material (column 2 lines 51-55), the planarization layer (7) surrounding end portions of the color filter layer (14 et al; column 24 lines 15-25; see figure 13) and a black matrix (9b; column 24 lines 26-30) in order to protect the filter and black matrix against physical damage and deterioration from external environmental factors (column 22 lines 3-40). Hence, it would have been obvious at the time of the invention to one of ordinary skill in the art to incorporate the planarization layer of Eida in the organic EL display of Yoneda. Motivation to combine would be to protect the filter and black matrix against physical damage and deterioration from external environmental factors.

In regard to claim 12, Yoneda et al ('127) teaches a method of fabricating an organic electroluminescent display device, comprising: forming a plurality of driving elements (3-8; figure 2; paragraphs 34-35) on a first substrate (2) having a plurality of pixel regions (1); forming a connection pattern contacting the driving elements (9); forming black matrix (23) on a second substrate (21) having the plurality of pixel regions (10, the black matrix being formed along a boundary of each of the plurality

of pixel regions (paragraph 39); forming a color filter layer including red, green, and blue color filters on a second substrate (22), each of the red, green, and blue color filters corresponding to each of the plurality of pixel regions (paragraph 39); forming a first electrode (17) on the black matrix (23; paragraph 20) and the color filter layer (22); forming an organic electroluminescent layer (14) on the first electrode (17); forming at least one second electrode (12) on the organic electroluminescent layer; and bonding the first and second substrates together (paragraph 20), wherein the connection pattern (9) contacts the at least one second electrode (12). Yoneda et al ('127) are silent regarding the limitation of forming a planarization layer surrounding end portions of the color filter layer and the black matrix and forming the first electrode on the planarization layer. In the same field of endeavor, Eida et al ('081) teaches an organic EL device comprising a planarization layer (7; figure 13; column 6 lines 30-32) between a first electrode (1a; column 24 line 13) and the color filter layers (14 and beneath 3R and 3G as described in column 24 lines 15-25), the planarization layer includes a transparent insulating material (column 2 lines 51-55), the planarization layer (7) surrounding end portions of the color filter layer (14 et al; column 24 lines 15-25; see figure 13) and a black matrix (9b; column 24 lines 26-30) to protect the filter and black matrix against physical damage and deterioration from external environmental factors (column 22 lines 3-40). Hence, it would have been obvious at the time of the invention to one of ordinary skill in the art to incorporate the planarization layer of Eida into the organic EL display of Yoneda. Motivation to combine would be to protect the filter and black matrix against physical damage and deterioration from external environmental factors.

In regard to claims 2 and 13, Yoneda et al ('127) teaches the organic electroluminescent layer (14) includes an organic material emitting white light (paragraph 42).

In regard to claims 4 and 15, Yoneda et al ('127) teaches a plurality of sidewalls (18) on the first electrode (17) corresponding to the black matrix (23; paragraph 37).

In regard to claims 5 and 16, Eida continues to teach that the planarization layer (7) includes a transparent insulating material (column 2 lines 51-55) to protect the filter and black matrix against physical damage and deterioration from external environmental factors (column 22 lines 3-40). Hence, it would have been obvious at the time of the invention to one of ordinary skill in the art to combine the display of Yoneda with the planarization layer of Eida. Motivation to combine would be to protect the filter and black matrix against physical damage and deterioration from external environmental factors.

In regard to claim 6, Yoneda et al ('127) teaches the first electrode includes one of an indium-tin-oxide (ITO) or an indium-zinc-oxide (IZO) (paragraph 36).

In regard to claim 7, Yoneda et al ('127) teaches at least one second electrode includes at least one of aluminum (Al), calcium (Ca), magnesium (Mg), and lithium (Li) (paragraph 36).

In regard to claims 8 and 17, Yoneda et al ('127) teaches the organic electroluminescent layer includes a hole-transporting layer (15) and an electron-transporting layer (13; paragraph 36).

In regard to claim 9, Yoneda et al ('127) teaches at least one second electrode (12) includes a plurality of the second electrodes (see figure 2).

In regard to claim 10, Yoneda et al ('127) teaches each of the plurality of second electrodes (12) contact each of the connection electrodes (9; paragraph 36).

In regard to claim 18, Yoneda et al ('127) teaches an organic electroluminescent display device (figure 2), comprising: first and second substrates bonded together (2, 21; paragraphs 34, 38 and 20; the Examiner notes that the "bonded together" limitation is not in the figures, see paragraph 20), the first and second substrates having a plurality of pixel regions (1; paragraph 39); a plurality of driving elements (3, 4, 5, 6, 7, 8; paragraphs 34-35) on an inner surface of the first substrate (2) within each of the plurality of pixel regions; a first electrode connected to the driving elements (9; paragraph 36); an organic electroluminescent layer on the first electrode (14); at least one second electrode on the organic electroluminescent layer (17); a black matrix (23) on an inner surface of the second substrate (20) along a boundary of each of the plurality of pixel regions (paragraph 39); and a color filter layer (22R,G,B) including red, green, and blue color filters on the inner surface of the second substrate (21), each of the red, green, and blue color filters corresponding to each of the plurality of pixel regions (paragraph 39). Yoneda et al ('127) are silent regarding the limitation of a planarization layer surrounding end portions of the color filter layer and the black matrix. In the same field of endeavor, Eida et al ('081) teaches an organic EL device comprising a planarization layer (7; figure 13; column 6 lines 30-32), the planarization layer (7) surrounding end portions of the color filter layer (14 et al; column 24 lines 15-25; see figure 13) and a black matrix (9b; column 24 lines 26-30) in order to protect the filter and black matrix against physical damage and deterioration from external environmental factors (column 22 lines 3-40). Hence, it would have been obvious at the time of the invention to one of ordinary skill in the art to incorporate the planarization layer of Eida into the organic EL device of Yoneda. Motivation to combine would be to protect the filter and black matrix against physical damage and deterioration from external environmental factors.

In regard to claim 27, Yoneda et al ('127) teaches a method of fabricating an organic electroluminescent display device (figure 2), comprising: forming a plurality of driving elements (3-8; paragraphs 34-35) on a first substrate (2) having a plurality of pixel regions (1); forming a first electrode (12) connected to the driving elements (via 9; paragraph 35); forming an organic electroluminescent layer (14) on the first electrode (12); forming a second electrode on the organic electroluminescent layer (17); forming a black matrix (23) on a second substrate (21) having the plurality of pixel regions (1), the black matrix being formed along a boundary of each of the plurality of pixel regions (39); forming a color filter layer including red, green, and blue color filters (22) on the second substrate (21), each of the red, green, and blue color filters corresponding to each of the plurality of pixel regions (paragraph 39); and bonding the first and second substrates together (paragraph 20), wherein the color filter layer (22) faces the second electrode (17). Yoneda is silent regarding the limitation of forming a planarization layer surrounding end portions of the color filter layer and the black matrix. In the same field of endeavor, Eida et al ('081) teaches an organic EL device comprising a planarization layer (7; figure 13; column 6 lines 30-32), the planarization layer (7) surrounding end portions of the color filter layer (14 et al; column 24 lines 15-25; see figure 13) and a black matrix (9b; column 24 lines 26-30) in order to protect the filter and black matrix against physical damage and deterioration from external environmental factors (column 22 lines 3-40). Hence, it would have been obvious at the time of the invention to one of ordinary skill in the art incorporate the planarization layer of Eida in the organic EL display of Yoneda. Motivation to combine would be to protect the filter and black matrix against physical damage and deterioration from external environmental factors.

In regard to claims 19 and 28, Yoneda et al ('127) teaches the organic electroluminescent layer (14) includes an organic material emitting white light (paragraph 42).

In regard to claims 21 and 30, Yoneda et al ('127) teaches a plurality of sidewalls (18) on the first electrode (17) corresponding to the black matrix (23; paragraph 37).

In regard to claim 22, Yoneda et al ('127) teaches the first electrode includes one of an indium-tin-oxide (ITO) or an indium-zinc-oxide (IZO) (paragraph 36).

In regard to claims 23 and 31, Yoneda et al ('127) teaches the organic electroluminescent layer includes a hole-transporting layer (15) and an electron-transporting layer (13; paragraph 36).

In regard to claim 24, Yoneda et al ('127) teaches at least one second electrode includes at least one of aluminum (Al), calcium (Ca), magnesium (Mg), and lithium (Li) (paragraph 36).

In regard to claim 25, Yoneda et al ('127) teaches at least one second electrode (12) includes a plurality of the second electrodes (see figure 2).

In regard to claim 26, Yoneda et al ('127) teaches each of the plurality of second electrodes (12) contact each of the connection electrodes (9; paragraph 36).

In regard to claim 32, Yoneda et al ('127) teaches an organic electroluminescent display device (figure 2), comprising: a plurality of driving elements (3, 4, 5, 6, 7, 8; paragraphs 34-35) on an inner surface of a first substrate (2) within each of a plurality of pixel regions (paragraph 39); a plurality of connection electrodes (9) contacting the driving elements; a black matrix (23) on an inner surface of the second substrate (21) at a boundary of each of the plurality of pixel regions (paragraph 39); a color filter

layer (22R,G,B)including red, green, and blue color filters on the inner surface of the second substrate (21), each of the red, green, and blue color filters corresponding to each of the plurality of pixel regions (paragraph 39); a first electrode (17) on the black matrix and the color filter layer; an organic electroluminescent layer (14) on the first electrode; and a plurality of second electrodes (12) on the organic electroluminescent layer, wherein each of the second electrodes contact one of the connection electrodes (9); and the first and second substrates (2, 21) are spaced apart from each other by a distance that includes the plurality of connection electrodes (9; see figures 2 and 3). Yoneda et al are silent regarding the limitation of a planarization layer surrounding end portions of the color filter layer and the black matrix and forming the first electrode on the planarization layer. In the same field of endeavor, Eida et al ('081) teaches an organic EL device comprising a planarization layer (7; figure 13; column 6 lines 30-32) between a first electrode (1a; column 24 line 13) and the color filter layers (14 and beneath 3R and 3G as described in column 24 lines 15-25), the planarization layer includes a transparent insulating material (column 2 lines 51-55), the planarization layer (7) surrounding end portions of the color filter layer (14 et al; column 24 lines 15-25; see figure 13) and a black matrix (9b; column 24 lines 26-30) in order to protect the filter and black matrix against physical damage and deterioration from external environmental factors (column 22 lines 3-40). Hence, it would have been obvious at the time of the invention to one of ordinary skill in the art to incorporate the planarization layer of Eida in the organic EL display of Yoneda. Motivation to combine would be to protect the filter and black matrix against physical damage and deterioration from external environmental factors.

In regard to claim 33, Yoneda et al ('127) teaches an organic electroluminescent display device (figure 2; paragraphs 33 to 39), comprising: a plurality of driving elements (3, 4, 5, 6, 7, 8; paragraphs 34-35) on an inner surface of a first substrate (2) within each of a plurality of pixel regions (paragraph 39); a plurality of connection electrodes (9) contacting the driving elements; a black matrix (23) on an inner

surface of the second substrate (21) at a boundary of each of the plurality of pixel regions (paragraph 39); a color filter layer (22) including red, green, and blue color filters on the inner surface of the second substrate (21), each of the red, green, and blue color filters corresponding to each of the plurality of pixel regions (paragraph 39); a first electrode on the black matrix (17) and the color filter layer (22); a plurality of sidewalls (18) on the first electrode corresponding to the black matrix; a plurality of organic electroluminescent layer segments (13-16) on the first electrode (17) between the sidewalls (18), each of the organic electroluminescent segments include a hole-transporting layer (15) and an electron-transporting layer (13); and a plurality of second electrodes (12) each on one of the organic electroluminescent layer segments (13), wherein each of the second electrodes contact one of the connection electrodes (9). Yoneda et al are silent regarding the limitation of a planarization layer surrounding end portions of the color filter layer and the black matrix and forming the first electrode on the planarization layer. In the same field of endeavor, Eida et al ('081) teaches an organic EL device comprising a planarization layer (7; figure 13; column 6 lines 30-32) between a first electrode (1a; column 24 line 13) and the color filter layers (14 and beneath 3R and 3G as described in column 24 lines 15-25), the planarization layer includes a transparent insulating material (column 2 lines 51-55), the planarization layer (7) surrounding end portions of the color filter layer (14 et al; column 24 lines 15-25; see figure 13) and a black matrix (9b; column 24 lines 26-30) in order to protect the filter and black matrix against physical damage and deterioration from external environmental factors (column 22 lines 3-40). Hence, it would have been obvious at the time of the invention to one of ordinary skill in the art to incorporate the planarization layer of Eida in the organic EL display of Yoneda. Motivation to combine would be to protect the filter and black matrix against physical damage and deterioration from external environmental factors.

In regard to claim 34, Yoneda et al ('127) teach an organic electroluminescent display device (figure 2), comprising: a plurality of driving elements (3, 4, 5, 6, 7, 8; paragraphs 34-35) on an inner surface of a first substrate within each of a plurality of pixel regions (paragraph 39); a plurality of first electrodes (9) contacting each of the driving elements; a black matrix (23) on an inner surface of the second substrate (21) at a boundary of each of the plurality of pixel regions (paragraph 39); a color filter layer (22) including red, green, and blue color filters on the inner surface of the second substrate (21), each of the red, green, and blue color filters corresponding to each of the plurality of pixel regions (paragraph 39); a second electrode (37); and an organic electroluminescent layer (34) on the second electrode (37), wherein the organic electroluminescent layer contacts each of the first plurality of electrodes (via 37; paragraph 39). Yoneda is silent regarding the limitation of a planarization layer on the black matrix and the color filter layer and the second electrode located on the planarization layer. In the same field of endeavor, Eida et al ('081) teaches an organic EL device comprising a planarization layer (7; figure 13; column 6 lines 30-32) between a first electrode (1a; column 24 line 13) and the color filter layers (14 and beneath 3R and 3G as described in column 24 lines 15-25), the planarization layer includes a transparent insulating material (column 2 lines 51-55), the planarization layer (7) surrounding end portions of the color filter layer (14 et al; column 24 lines 15-25; see figure 13) and a black matrix (9b; column 24 lines 26-30) in order to protect the filter and black matrix against physical damage and deterioration from external environmental factors (column 22 lines 3-40). Hence, it would have been obvious at the time of the invention to one of ordinary skill in the art to incorporate the planarization layer of Eida in the organic EL display of Yoneda. Motivation to combine would be to protect the filter and black matrix against physical damage and deterioration from external environmental factors.

Claims 3, 14, 20, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoneda et al (US 20010026127) in view of Eida et al (US 5909081) and in further view of Shirasaki et al (US 5834894).

Yoneda/Eida describe all the limitations set forth, as described above, except the organic electroluminescent layer includes an organic material emitting red, green, and blue colored light corresponding to each of the red, green, and blue color filters. Shirasaki et al ('894) teaches the organic electroluminescent layer (65; figure 13; column 9 lines 5-6) includes an organic material emitting red, green, and blue colored light (65R,G, B) corresponding to each of the red, green, and blue color filters (63R,G,B; column 9 lines 34-42) in order to produce a more vibrant light from each pixel (column 9 lines 34-42). Hence, it would have been obvious at the time of the invention to one of ordinary skill in the art to combine the organic EL device of Yoneda/Salerno/Okamoto with the corresponding el and filter layers of Shirasaki et al ('894). Motivation would be to produce a more vibrant light from each pixel.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoneda et al (US 20010026127) in view of Eida et al (US 5909081) and in further view of Kanai et al (US 6121727).

Yoneda/Eida describe all the limitations set forth, as described above, except the second electrodes include a double-layered structure including lithium fluorine and aluminum. Kanai et al ('727) teaches electrodes including a double-layered structure (4 and 5; figure 1; column 3 lines 20-25) including lithium flourine and aluminum (column 15 lines 59 - 61; column 12 lines 25-26) in order to prevent deterioration of the device (column 2 lines 6-41). Hence, it would have been obvious at the time of the invention to one of ordinary skill in the art to combine the organic EL device of Yoneda/Salerno with the electrode structure of Kanai et al ('727). Motivation would be to prevent deterioration of the device.

Response to Arguments

Applicant's arguments filed 5/5/06 have been fully considered but they are not persuasive.

The Examiner thanks the Applicant for the clear and concise arguments of the previous office action.

In regard to Applicant's argument that the prior art of record fails to teach a proper motivation to combine the protection layer of Eida with the OLED of Yoneda, the Examiner respectfully disagrees. Eida ('081) teaches an OLED provided with a protection layer (which is also a planarization layer, since Eida describes the last as a "flat film" and is thus considered to be analogous to a planarization layer) surrounding the end portions of the color filter layer and the black matrix (see figure 13 and discussions above). Eida states that the protection layer is used to protect the filter and black matrix from physical damage and deterioration from external environmental factors. Accordingly, one skilled in the art would reasonably contemplate the incorporation of a planarization layer as disclosed by Eida in an organic EL device for further protection of the filter and black matrix components.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth A. Rielley whose telephone number is 571-272-2117. The examiner can normally be reached on Monday - Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elizabeth Rielley

Examiner
Art Unit 2879

MARICELI SANTIAGO
PRIMARY EXAMINER